

REMARKS

In the present Amendment, claim 1 has been amended to delete the word “type” in the expression “A positive type resist composition,” and the recitation of claim 7 has been incorporated into claim 1. Claim 7 has been canceled, accordingly. In addition, the colons at the end of claims 11 and 12, respectively, have been replaced with periods, correcting this typographical error.

No new matter has been added, and entry of the Amendment is respectfully requested. Upon entry of the Amendment, claims 1-6 and 8-13 will be pending.

In Paragraph No. 1 of the Action, claim 1 is objected to because of an informality.

The Examiner states that the word “type” is a relative term which does not qualify the term “positive resist” in a useful fashion, and it may be deleted.

To overcome the objection, the word “type” has been deleted from claim 1, in accordance with the Examiner’s suggestion.

In Paragraph No. 4 at page 3 of the Action, claims 1-5 and 8-13 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Watanabe et al (US 6,818,148).

It is believed that the rejection was meant to be a rejection for obviousness under § 103. The Examiner concedes that the Resist Composition of Watanabe et al that the Examiner relies upon, namely, Resist Composition E, does not include an alkoxy alcohol solvent. The Examiner reasons, however, that one of ordinary skill in the art “would have found it obvious” to arrive at the subject matter of the present claims. Thus, the Examiner’s reasoning shows that the rejection is properly a rejection for obviousness, not anticipation.

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In the present Amendment, as noted above, the recitation of claim 7 has been incorporated into claim 1. Thus, claim 1 now recites that the resin (A) includes a repeating unit having an alkali-soluble group protected by a 2-alkyl-2-adamantyl group or a 1-adamantyl-1-alkylalkyl group. Watanabe et al '148 does not disclose or suggest a resin including such a repeating unit, and claim 7 was not subject to the present rejection.

In view of the above, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1-5 and 8-13 based on Watanabe et al '148.

In Paragraph No. 5 at page 4 of the Action, claims 1-3, 5, 6, 9, 10 and 13 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Tanigawa et al (WO 00/58252, equivalent document U.S. 6,610,638 relied upon for translation).

As noted, the recitation of claim 7 has been incorporated into independent claim 1 in the present Amendment. Claim 7 was not subject to the present rejection.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the § 103 rejection of claims 1-3, 5, 6, 9, 10 and 13 based on Tanigawa et al (WO 00/58252).

In Paragraph No. 6 at pages 4-5 of the Action, claim 7 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Tanigawa et al in view of Fujimori et al (U.S. 6,692,897).

The Examiner concedes that Tanigawa et al WO '252 does not teach the use of "other" adamantyl acrylate resins for preparation of photoresist compositions. The Examiner is referring to resins other than the monohydroxy adamantyl acrylate referred to at column 35, lines 50-52 of Tanigawa et al U.S. '638 (equivalent to WO '252).

The Examiner states that Fujimori et al teaches preparation of a series of resins for making photoresists comprised of mono-alicyclic and polyalicyclic structures. The Examiner cites Examples 20-80. The Examiner states that particularly useful resins contain an adamantyl group having at least one hydroxyl group (Example A-II; allegedly the same as that shown in present claim 6) and 2-alkyl adamantyl groups (columns 15 and 19). The Examiner reasons that one of ordinary skill in the art would have found it obvious to use a solvent such as 1,3-propanediol methyl ether described in Tanigawa et al for the resins shown in Fujimori et al because the prior art purportedly shows that 3-alkoxy 1-alcohols are useful in making thin films of this general series of polymer.

Applicant submits that this rejection should be withdrawn because Tanigawa et al and Fujimori et al do not disclose or render obvious the positive resist composition of the present claims.

There appears to be an element of hindsight in the Examiner's reasoning, which is improper. The Examiner reasons that one of ordinary skill in the art would have found it obvious to use a solvent such as 1,3-propanediol methyl ether as described in Tanigawa et al for the resins shown in Fujimori et al because "the prior art shows that 3-alkoxy1-alcohols are useful in making thin films of this general series of polymer." See the first full sentence on page 5 of the Action.

Applicant respectfully disagrees. Tanigawa et al merely discloses that, by testing the solubility of a monohydroxyadamantane acrylate/THP methacrylate resin in a mixed solvent

consisting of 3-methoxy-1-propanol and propanediol methyl ether acetate (PGMEA), the solubility of this resin in this solvent is good (see Example IV-14 thereof).

In other words, this experiment of Tanigawa et al can neither be regarded as disclosing that “3-methoxy-1-propanol is an effective solvent for the formation of a thin film of the resin”, nor as disclosing that the solvent is an effective one for the formation of a thin film of a resist composition containing the resin.

A high solubility of a certain resin in a solvent does not always mean that such a solvent is suited for the formation of a thin film of a photo-resist composition containing the resin, which fact is well known to those skilled in the art. For example, though THF exhibits high solubility for a variety of resins, it is an inappropriate solvent for thin film formation because of the poor thickness uniformity of the resulting thin films.

Also, cases are known where thin film formation becomes difficult once additional ingredients other than the resin (such as a photo-acid generator, additives, etc.) are incorporated for the purpose of controlling the photoresist performance.

In addition, in Tanigawa et al, no description or suggestion is provided with respect to a 2-alkyladamantyl group as an acid-decomposable group to be contained in the resin.

On the other hand, Fujimori et al discloses that a resin containing an adamantyl group having at least one hydroxyl group and 2-alkyladamantyl is effective for the improvement of edge roughness, pattern profile and development defects. However, Fujimori et al does not describe or suggest the improvement of affinity for developer during development, which characterizes the present invention.

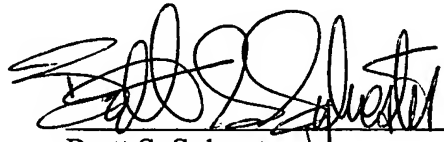
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From the discussion presented above, it is seen that no motivation is found in Tanigawa et al or Fujimori et al for those skilled in the art to combine a resin having a 2-alkyladamantyl group with an alkoxy-alcohol. As noted, high solubility of a certain resin in a solvent does not always mean that the solvent is suited for forming a thin film of a photoresist composition containing the resin. And there is certainly no disclosure or suggestion in the art of combining a resin having a 2-alkyladamantyl group with an alkoxy-alcohol for the purpose of improving affinity for developer during development characterizing the present invention. Accordingly, Applicant strongly considers that the combination of the present invention cannot be judged obvious.

In view of the above, Applicant respectfully submits that the positive photoresist composition of the present invention is patentable over Tanigawa et al and Fujimori et al. Reconsideration and withdrawal of the § 103 rejection of claim 7 (now incorporated into claim 1) based on Tanigawa et al in view of Fujimori et al is respectfully requested.

Allowance is respectfully requested.

Respectfully submitted,



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